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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend the claims to read as follows:

1.   (Twice Amended) An optical switch for a network having a plurality of nodes, comprising:

[1)] a switch coupled to communications links used for input and output in which a plurality of wavelengths are used to carry traffic on a communications link, said switch comprising a light beam steering mechanism for directing said traffic; and

[2)] a controller, coupled to the switch, for controlling the operation of the switch by implementing a routing protocol and exchanging routing information with other nodes, and implementing a labeling protocol that associates a label with a destination, said label comprising at least one of a wavelength and a fiber number,

wherein the controller controls [controlling] the switch to direct the various wavelengths of traffic from an input link to an appropriate output link as determined by the routing protocol and the labeling protocol.

2.   (Amended) The optical switch according to claim 1, further comprising:

a route table for storing destinations therein for routing of said traffic,

wherein different destinations stored in the route table are associated with different wavelengths of light.

3.   (Amended) The optical switch according to claim 2, wherein said light beam steering mechanism comprises [further comprising] a reflective device for directing traffic from said input link to an appropriate output link.

5.   (Amended) The optical switch according to claim 1, wherein said [switch comprises a] light beam steering mechanism directs said [for directing] traffic from said input link to an appropriate output link.

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14.   (Amended) An optical switch for a network having a plurality of nodes, comprising:

a switch coupled to communications links used for input and output in which a plurality of wavelengths are used to carry traffic on a communications link; and

a controller, coupled to the switch, for controlling the operation of the switch by implementing a routing protocol, and implementing a label distribution protocol that associates a label with a destination, said label comprising at least one of a wavelength and a fiber number,

wherein the controller controls the switch to direct the various wavelengths of traffic from an input link to an appropriate output link as determined by the routing protocol and the label distribution protocol,

wherein, in said network, routes for a destination form a tree,

wherein said switch establishes switched paths to each egress point at which traffic leaves a network of ones of said switch, the switch paths to said egress being used for all destinations that are behind said egress,

wherein the switched paths are established from each said egress, by growing a switched path tree which is rooted at the egress

wherein a selected path tree uses a single wavelength that is passed upwards from a root as branches are added to the selected path tree

wherein said optical switch further comprises: .

a plurality of optical ports connectable to said switch, each port connecting to a plurality of bundles of optical fibers, wherein a port receives traffic on a first of said fiber bundles and transmits on a second of said fiber bundles,

wherein each fiber bundle contains one optical fiber or a plurality of optical fibers, each for carrying a plurality of said wavelengths of light, and

[The optical switch according to claim 13,]

wherein, in a network of ones of said switch, a wavelength is associated with each egress and a selected fiber number is associated with each ingress point.

22.   (Amended) The optical switch according to claim 13, wherein [said switch further

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comprises a light steering mechanism,

wherein, with said fiber bundle containing one optical fiber,] said light beam steering mechanism steers blocks of predetermined numbers of wavelengths to selected output ports.

23.   (Amended) An optical switch for a network having a plurality of nodes, comprising:

a switch coupled to communications links used for input and output in which a plurality of wavelengths are used to carry traffic on a communications link; and

a controller, coupled to the switch, for controlling the operation of the switch by implementing a routing protocol, and implementing a label distribution protocol that associates a label with a destination, said label comprising at least one of a wavelength and a fiber number,

wherein the controller controls the switch to direct the various wavelengths of traffic from an input link to an appropriate output link as determined by the routing protocol and the label distribution protocol,

wherein, in said network, routes for a destination form a tree,

wherein said switch establishes switched paths to each egress point at which traffic leaves a network of ones of said switch, the switched paths to said egress being used for all destinations that are behind said egress,

wherein the switched paths are established from each said egress, by growing a switched path tree which is rooted at the egress

wherein a selected path tree uses a single wavelength that is passed upwards from a root as branches are added to the selected path tree

wherein said optical switch further comprises a plurality of optical ports connectable to said switch, each port connecting to a plurality of bundles of optical fibers, wherein a port receives traffic on a first of said fiber bundles and transmits on a second of said fiber bundles,

wherein each fiber bundle contains one optical fiber or a plurality of optical fibers, each for carrying a plurality of said wavelengths of light,

[The optical switch according to claim 13,]

wherein said switch further comprises a light steering mechanism, and

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wherein, with said fiber bundle including a plurality of optical fibers, said switch merges the fibers from the input ports, such that a fiber-0 is merged from each of the input ports into a single merged fiber-0 and doing the same for each of the other plurality of fibers.

27.   (Amended) The optical switch according to claim 1 [5], wherein said light beam steering mechanism comprises a non-movable mirror formed of a liquid crystal.

31.   (Twice Amended) An optical switch for a network having a plurality of nodes, comprising:

[1)] a switch coupled to communication links used for input and output in which a plurality of wavelengths are used to carry traffic on a communications link, said switch comprising a light beam steering mechanism for directing said traffic; and

[2)] a controller, coupled to said switch, for controlling an operation of said switch by implementing a routing protocol and exchanging routing information with other nodes, implementing a network protocol and forwarding said traffic to a next hop, and implementing a labeling protocol that associates a label with a destination, said label comprising at least one of a wavelength and a fiber number,

the controller controlling said switch such that said switch uses said wavelengths of said link to route said traffic between said nodes of said network.

32.   (Twice Amended) A network, comprising:

a plurality of nodes for communicating with one another; and

a plurality of optical switches for routing traffic between said nodes, each of said optical switches comprising:

[1)] a switch coupled to communications links used for input and output in which a plurality of wavelengths are used to carry traffic on a communications link, said switch comprising a light beam steering mechanism for directing said traffic; and

[2)] a controller, coupled to the switch, for controlling an operation of the switch by implementing a routing protocol and exchanging routing information with other nodes, and implementing a labeling protocol that associates a label with a destination, said

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label comprising at least one of a wavelength and a fiber number,

the controller controlling said switch to direct various wavelengths of traffic from an input link to an appropriate output link as determined by the routing protocol and the labeling protocol.

33.   (Twice Amended) A network, comprising:

a plurality of nodes for communicating with one another; and

a plurality of optical switches for routing traffic between said nodes, each of said optical switches comprising:

[1)] a switch coupled to communications links used for input and output in which a plurality of wavelengths are used to carry traffic on a communications link, said switch comprising a light beam steering mechanism for directing said traffic; and

[2)] a controller, coupled to said switch, for controlling an operation of said switch by implementing a routing protocol and exchanging routing information with other nodes, implementing a network protocol and forwarding said traffic to a next hop, and implementing a labeling protocol that associates a label with a destination, said label comprising at least one of a wavelength and a fiber number,

the controller controlling said switch such that said switch uses said wavelengths of said link to route said traffic between said nodes of said network.

34.   (Twice Amended) A method of communicating over a network having a plurality of nodes, comprising:

[1)] coupling a switch to communications links used for input and output in which a plurality of wavelengths are used to carry traffic on a communications link, said switch comprising a light beam steering mechanism for directing said traffic; and

[2)] controlling an operation of the switch by implementing a routing protocol and exchanging routing information with other nodes, and implementing a labeling protocol that associates a label with a destination, said label comprising at least one of a wavelength and a fiber number,

said controlling including directing various wavelengths of traffic from an input link

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to an appropriate output link as determined by the routing protocol and the labeling protocol.

35. (Twice Amended) A method of communicating over a network having a plurality of nodes, comprising:

[1)] coupling a switch to communications links used for input and output in which a plurality of wavelengths are used to carry traffic on a communications link, said switch comprising a light beam steering mechanism for directing said traffic; and

[2)] controlling an operation of said switch by implementing a routing protocol and exchanging routing information with other nodes, implementing a network protocol and forwarding said traffic to a next hop, and implementing a labeling protocol that associates a label with a destination, said label comprising at least one of a wavelength and a fiber number; and

using said wavelengths on said link to route said traffic between said nodes of said network.

36. (Twice Amended) A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a method of routing traffic over a network having a plurality of nodes, said method comprising:

causing a switch to be coupled to communications links used for input and output in which a plurality of wavelengths are used to carry traffic on a communications link, said switch comprising a light beam steering mechanism for directing said traffic; and

controlling the operation of said [a] switch by implementing a routing protocol and exchanging routing information with other nodes, and implementing a labeling protocol that associates a label with a destination, said label comprising at least one of a wavelength and a fiber number,

said controlling including directing the various wavelengths of traffic from an input link to an appropriate output link as determined by the routing protocol and the labeling protocol.

37. (Twice Amended) A signal-bearing medium tangibly embodying a program of

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machine-readable instructions executable by a digital processing apparatus to perform a method of routing traffic over a network having a plurality of nodes, said method comprising:

causing a switch to be coupled to communications links used for input and output in which a plurality of wavelengths are used to carry traffic on a communications link, said switch comprising a light beam steering mechanism for directing said traffic; and

controlling an operation of said switch by implementing a routing protocol and exchanging routing information with other nodes, implementing a [an] network protocol and forwarding said traffic to a next hop, and implementing a labeling a protocol that associates a label with a destination, said label comprising at least one of a wavelength and a fiber number; and

using said wavelengths of said link to route said traffic between said nodes of said network.

38.   (Amended) The optical switch according to claim 1, wherein said traffic comprises a plurality of data packets. said data packet being labeled by one of a wavelength and a fiber number on which said data packet is carried [packet traffic, and wherein said labeling protocol is implemented such that said data packet traffic is devoid of packet headers].